

Position Papers

Impacts from Resource Use

A common position paper

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In a recent paper by Stewart & Weidema (2005) an impact assessment procedure for resource dissipation was suggested, involving the modelling of a future compensating backup technology. To this proposal, Finnveden (2005) reacts and suggests that if this procedure is to be used, it should instead be a part of the inventory analysis, and that this would highlight that impact assessment of resource use is still incomplete when it comes to assessing the impacts on human welfare in a broad sense.

Since we fundamentally agree on these issues, we have decided to prepare the following common position paper, with the intention of clarifying the concepts. Thus, we expand on two issues:

- Why it would be more consistent with other aspects of LCA methodology to perform our suggested modelling of future backup technologies as part of the inventory analysis.
- Why the economic and social impacts of resource use still need to be covered in a separate modelling.

The borderline between inventory analysis and impact assessment

Whether a specific modelling should be done within the inventory assessment or within the impact assessment, is to some extent a matter of choice. The same item may be an impact in one study, while being a part of the product system in another study. It is therefore essential in each study to define clearly the borderline between the product system (the human activities) and its environment (upon which the product system impacts). However, the ISO standard 14044 recommends that inputs to the product system should be flows that are drawn from the environment without human transformation, and outputs should be flows that are discarded to the environment without subsequent human transformations (ISO 2005). If current resource use leads to changes in future resource use, the future inputs from and outputs to the environment should, in line with the ISO standard, be listed in the inventory analysis. The potential environmental impacts of these future inputs and outputs should then be assessed in the impact assessment.

A parallel can be drawn to how waste has been handled in LCA. In the early days of LCA, 'Waste' was listed as an inventory item, because the waste was largely leaving the human interest-sphere in an untreated form. Today, we are accustomed to include 'Waste treatment' as a human activity within the product system, so that it is the environmental exchanges from waste treatment that are the starting point for the impact assessment.

For resource use, an argument for keeping the future consequences of current resource dissipation as part of the impact assessment could be that the changes in future product systems are more uncertain and may be treated with less detail (e.g. including only energy consumption as indicator, rather than the full suite of environmental exchanges), and that it may therefore be appropriate to treat this part of the product systems separately. However, it is already common practice to include foreseeable recovery and recycling processes

in the product system so that only those outputs that cannot be expected to be recovered or recycled are included in the impact assessment phase. Therefore, it would be consistent to also include in the inventory analysis the foreseeable future process changes as a consequence of current resource dissipation. In both cases, the modelling procedure and the final outcome of the LCA would be the same.

Stewart & Weidema (2005) chose to present their modelling for future backup technologies as part of impact assessment, mainly because there is a tradition to treat resources as an impact category in LCA. However, we do agree that it would be preferable to place it as part of the inventory analysis, in parallel to for example future waste treatment processes. This would make it easier to ensure that the same inventory procedures for data collection and forecasting would be applied, thus increasing the overall consistency of the LCA modelling.

As a general rule for the delimitation between inventory analysis and impact assessment, we propose that only impacts that are not (expected to be) remedied or compensated are to be included in the impact assessment. This delimitation can also be justified on the basis that activities occurring in the technical/economic system are generally captured in inventory analysis, and processes occurring in the environment are modelled in impact assessment.

Other impacts of resource use

It is generally agreed (e.g. Joliet et al. 2004) that resources have mainly an instrumental value, i.e. resources are valuable because they enable us to produce or protect other things that have intrinsic value to us, although different people may have different opinions concerning the intrinsic values. We believe that, over and above the current and future biophysical impacts of resource use, there are also other economic and social impacts of relevance such as distributional impacts and impacts on human productivity which, as higher order effects, will also have impacts on human health and well-being. This implies that, even if the biophysical impacts of future resource extractions are included in the inventory analysis as suggested above, there are other impacts which still needs to be accounted for.

References

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